

## Coming Full Circle:

The urban street evolution –from vulnerable users to complete streets

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Complete Streets Forum  
Miami, FL  
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### Evolution:

- Shared space (chaotic)
- Separate but equal
- Separation to enhance vehicular flow
- Safety to occupants of the vehicle
- Shared space (civil)

# Persistent Problem

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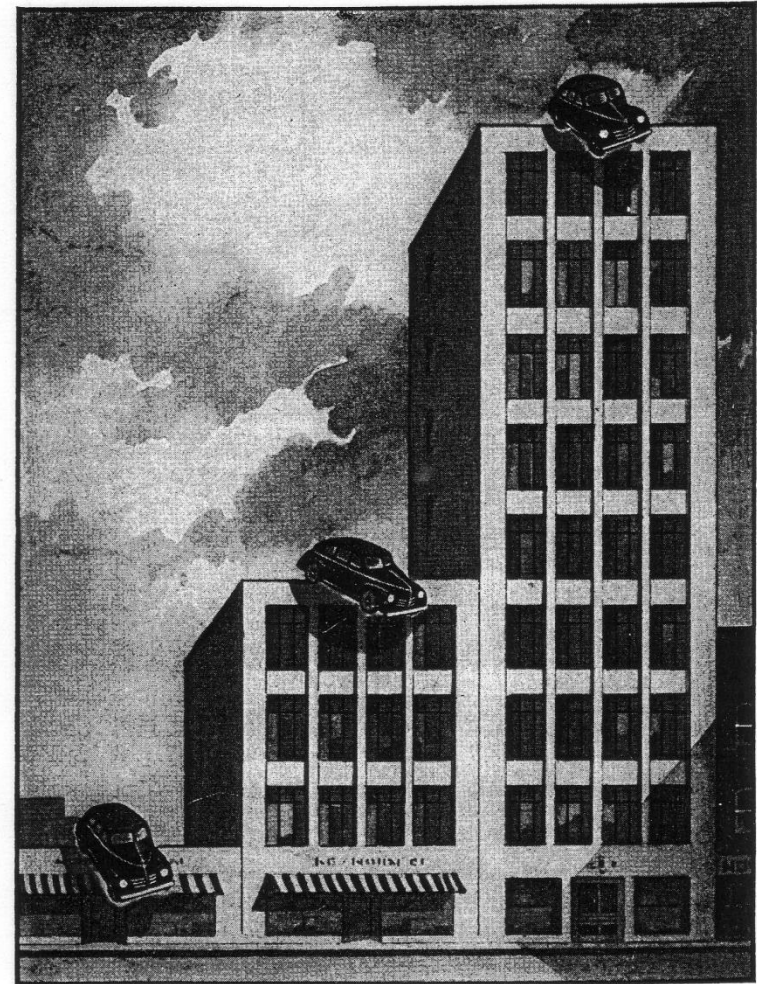
Brooklyn  
Dodgers

Trolley



# About Which we Have a Lot of Knowledge

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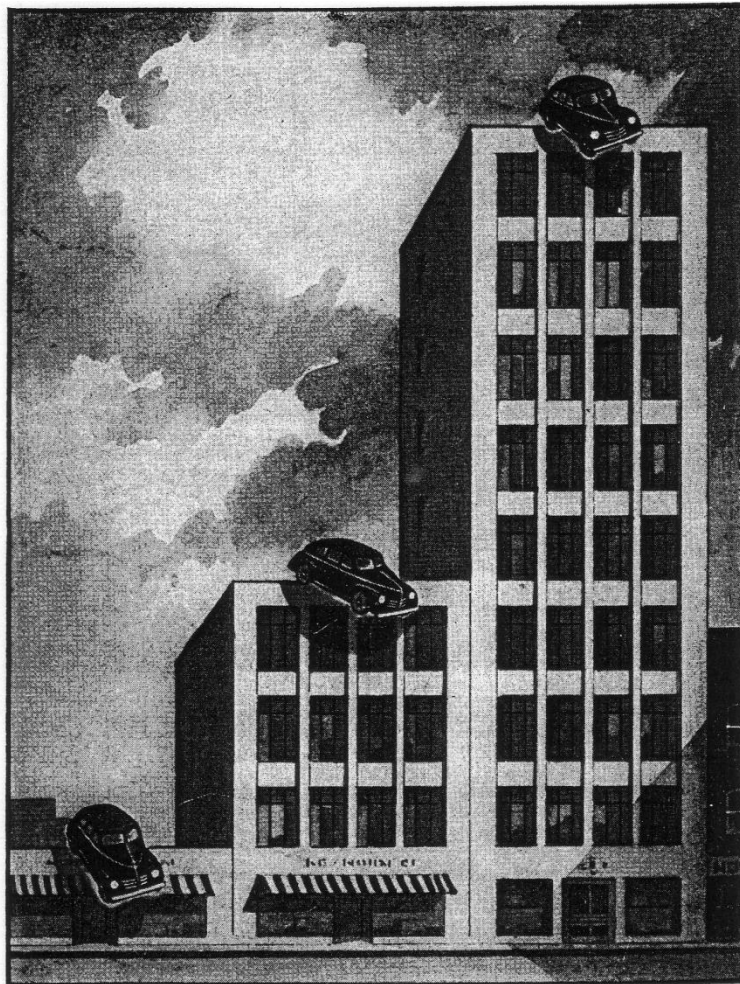
20 M.P.H.  
Height 13.5 ft.

40 M.P.H.  
Height 54 ft.

60 M.P.H.  
Height 121.5 ft.

Fig. 33—Speed and the force of impact

# And Good Vocabulary

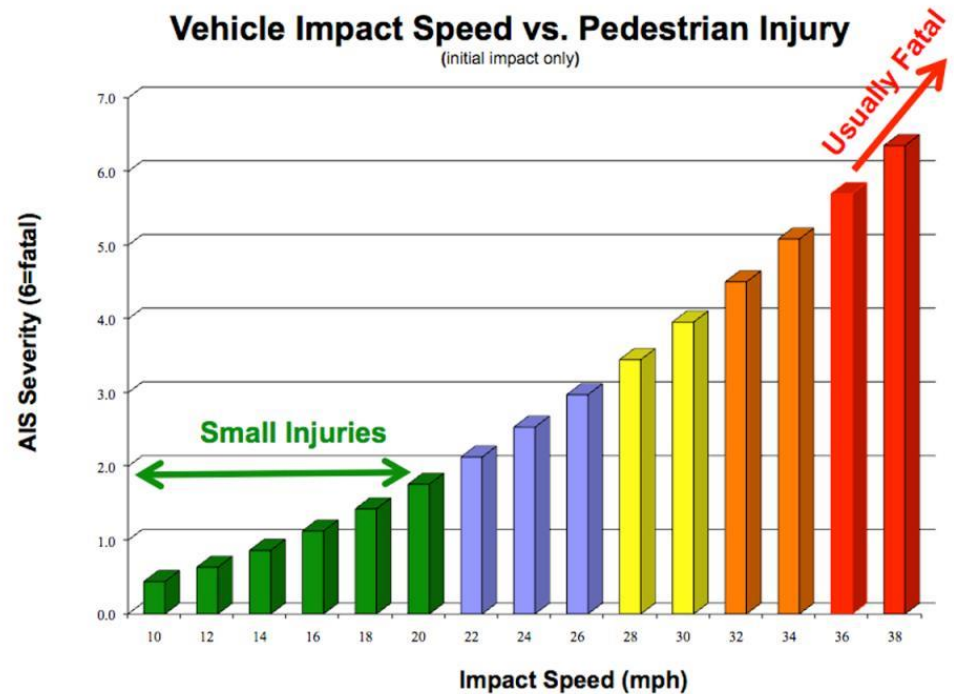


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Fig. 33—Speed and the force of impact



# Traditional Solutions

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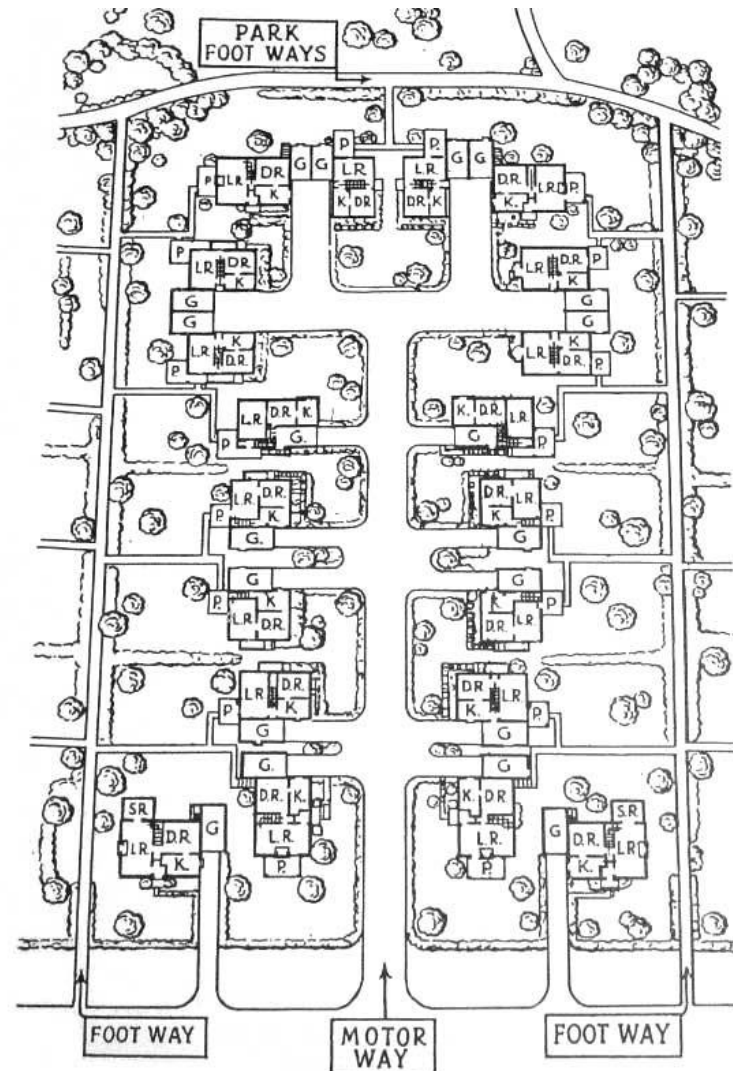
- Separation
- Command and Control (make people, in and out of cars, behave better)
- Build systems that forgive errors (effective for people encased in their automobiles)
- Three Es of traffic safety
  - Education
  - Enforcement
  - Engineering



# Separate but Equal (Radburn, NJ)

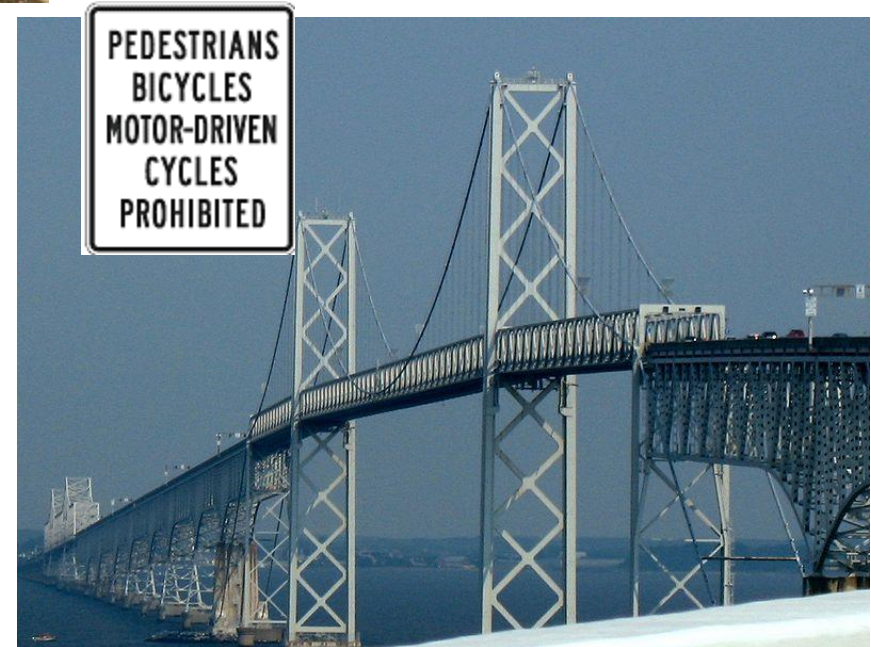
## History of unintended consequences

- Introduced the concept of a cul-de-sac
- Context begged for higher speed facilities to access the site



# Separate (Not Equal)

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# Or Not at All: The Forgotten Pedestrian

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# Command and Control





# Will You Please Behave?

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Adapt the system to the people?

or

Make the people adapt to the system?



# desire lines







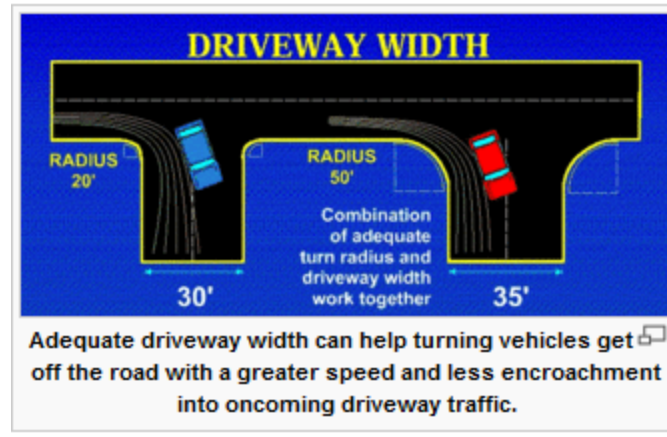
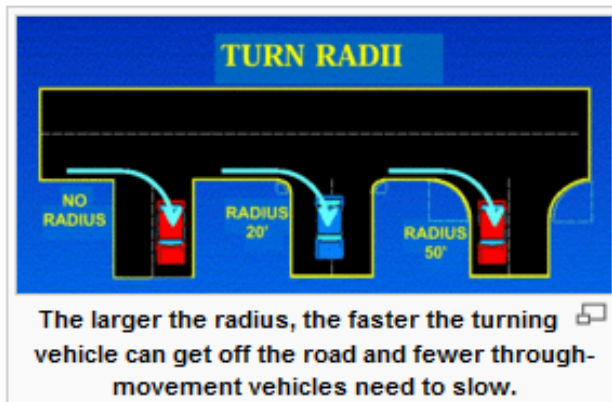
Brasília



# History of Traffic Safety = History of Automobile Safety

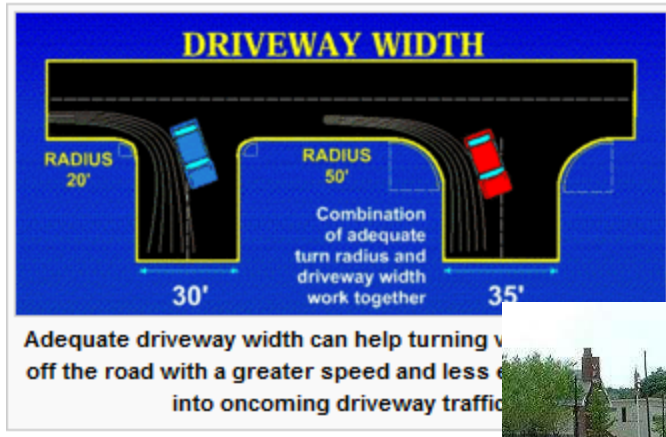
Minimum curve radii are needed for safety.

Minimum radii selected were based on the assumption that vehicle occupants should not feel any effects (centrifugal force) of the turning vehicle along those radii.



# Corollary: History of Pedestrian and Bicycle Safety

## Deterioration = History of Unintended Consequences





# Corollary: History of Pedestrian and Bicycle Safety

## Deterioration = malign neglect



Right Turn on Red: The Forgotten Pedestrian and Cyclist

# Beliefs and Their Origins

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No increased danger due to vehicles turning right on red.

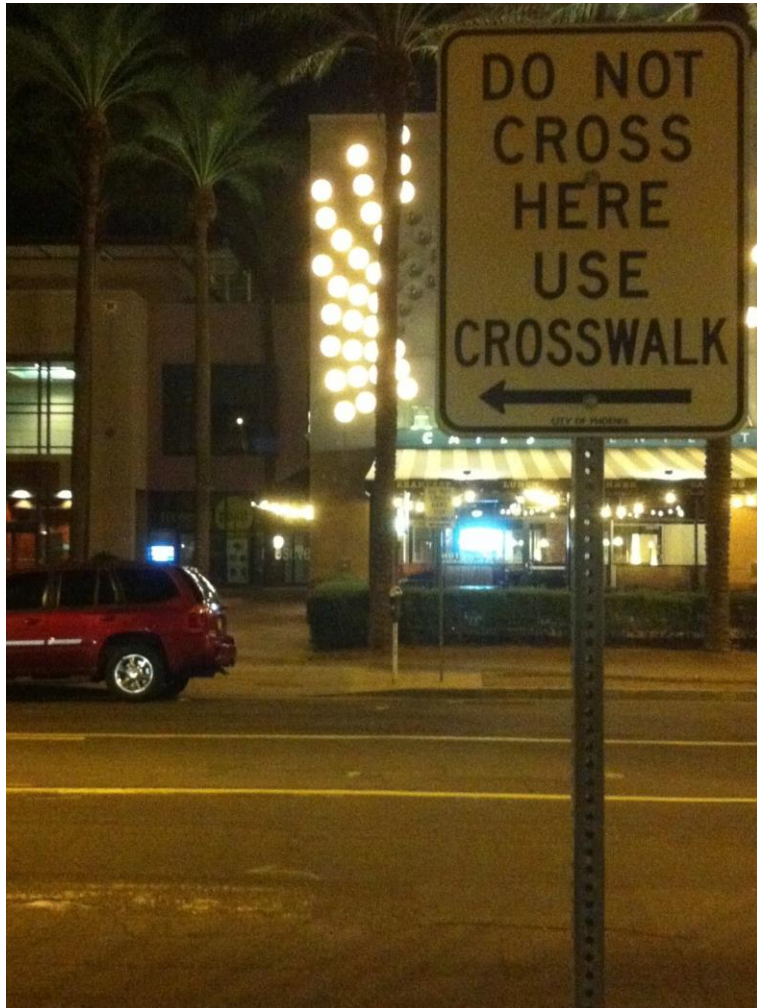
Misinterpreted statistical conclusion based on small sample studies.

Pedestrian volume signal warrant shall not be applied within 300ft of a signal controlling the street pedestrians wish to cross. Unless the proposed signal will not restrict the progressive movement of traffic.

Manual on Uniform Traffic Control Devices

“A safe roadway is one in which none of the driver-vehicle-roadway interactions approaches the critical level at any point along its length.” AASHTO 1974





# Clearly, You Need to Be Protected From Yourself

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- Crash avoidance features of roads
  - Clear zones (“for safe use by errant vehicles”)
  - Breakaway Devices
- Crash avoidance features of cars
  - forward collision warning,
  - autobrake,
  - lane departure warning,
  - lane departure prevention,
  - adaptive headlights and
  - blind spot detection





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**HOW DO WE REACH IT?**

# How Did We Get From

Here



to

Here?



Peoria, IL

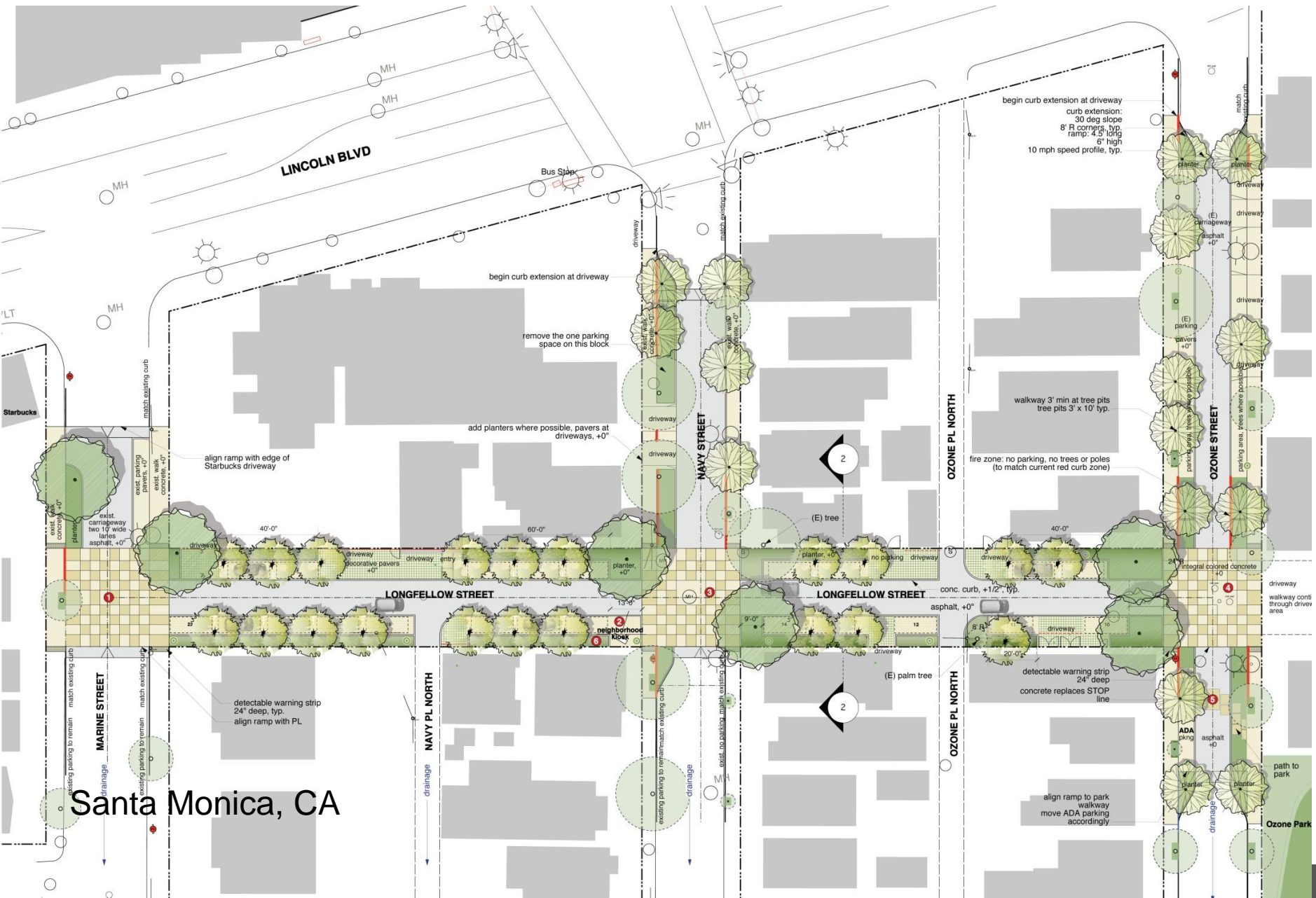


# Peoria Policies

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- “Regulate use along arterial streets and highways to protect their **through-traffic** function and capacity”
  - City of Peoria Zoning Ordinance Article 1, Section 1.2.b.(4)
- “**Wide traffic lanes** are used to maintain speeds of 30-45 miles per hour”
  - City of Peoria Subdivision Regulation, Article III, Section 3-104.Q.2: Definition of Arterials
- “**Access** to local land use should be **limited** to allow more efficient traffic flow...”
- “The primary function is to provide **through movement** of traffic”
  - City of Peoria Subdivision Regulation, Article III, Section 3-104.Q.2: Definition of Arterials

# Can We Reverse the Process?





# Getting From

Here



to

Here?



# And Here

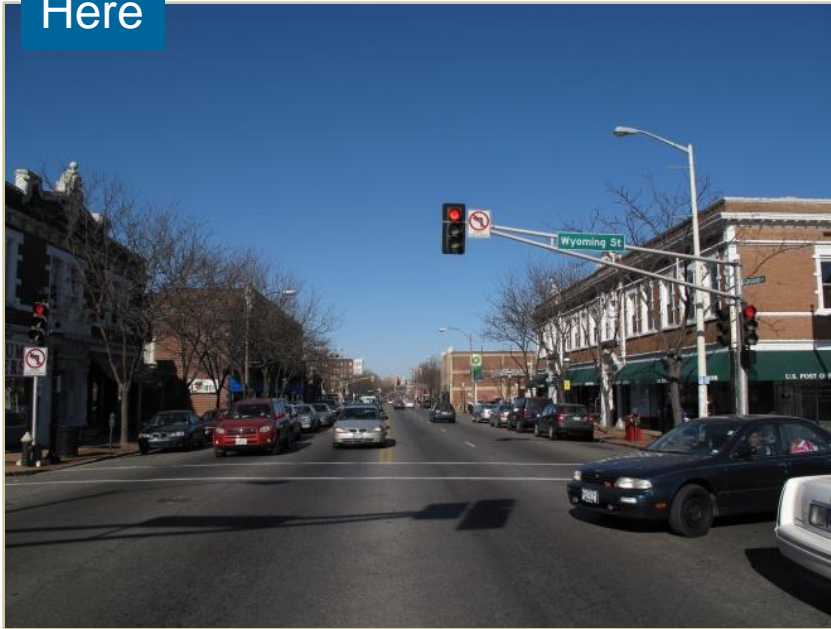
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# Getting From

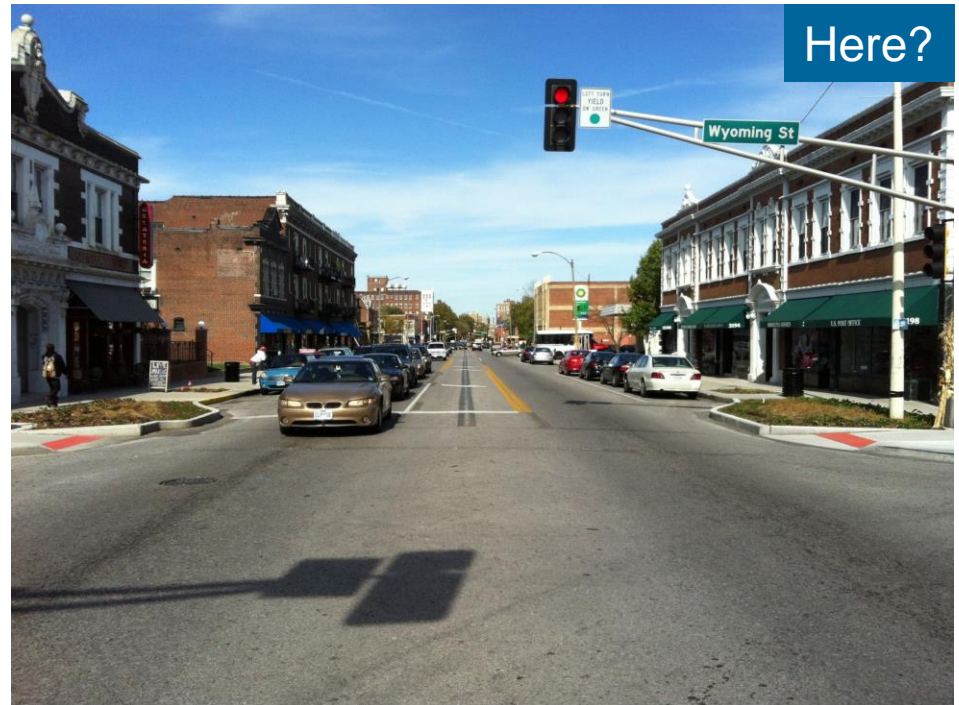
Here



South Grand Blvd  
St. Louis, MO

to

Here?



# Results

- ❑ Annual tax revenue + 14% first year
- ❑ Expected crashes -85%
- ❑ Minimum expected savings due to crash reduction \$3M
- ❑ Expected fatality from crash  
100% before  
25% after





# Safer Streets, Stronger Economies

## ❑ Edgewater Drive (Orlando)

Real estate + 80%; +70% w/in ½ mile of the corridor

## ❑ Uptown district (Normal, IL)

\$160M in private investment

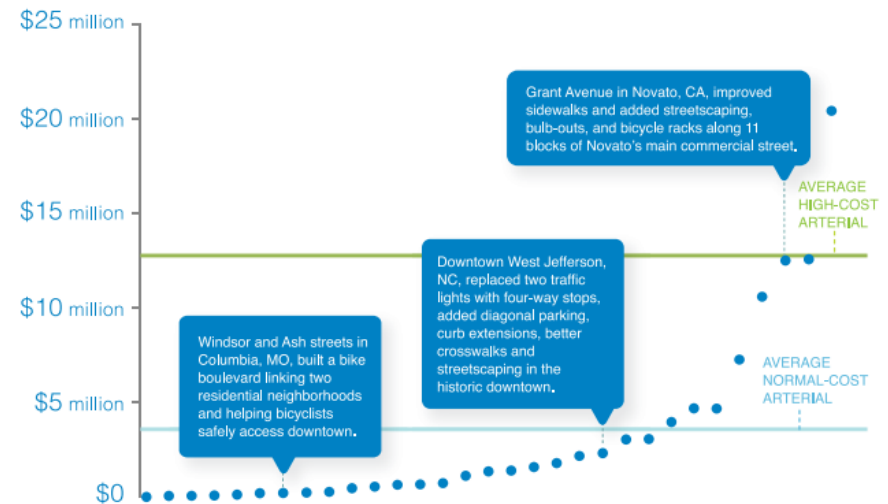
## ❑ Euclid Avenue (Cleveland)

\$5.8B along Healthline Corridor



## The cost per mile to build Complete Streets projects vs. an average arterial road

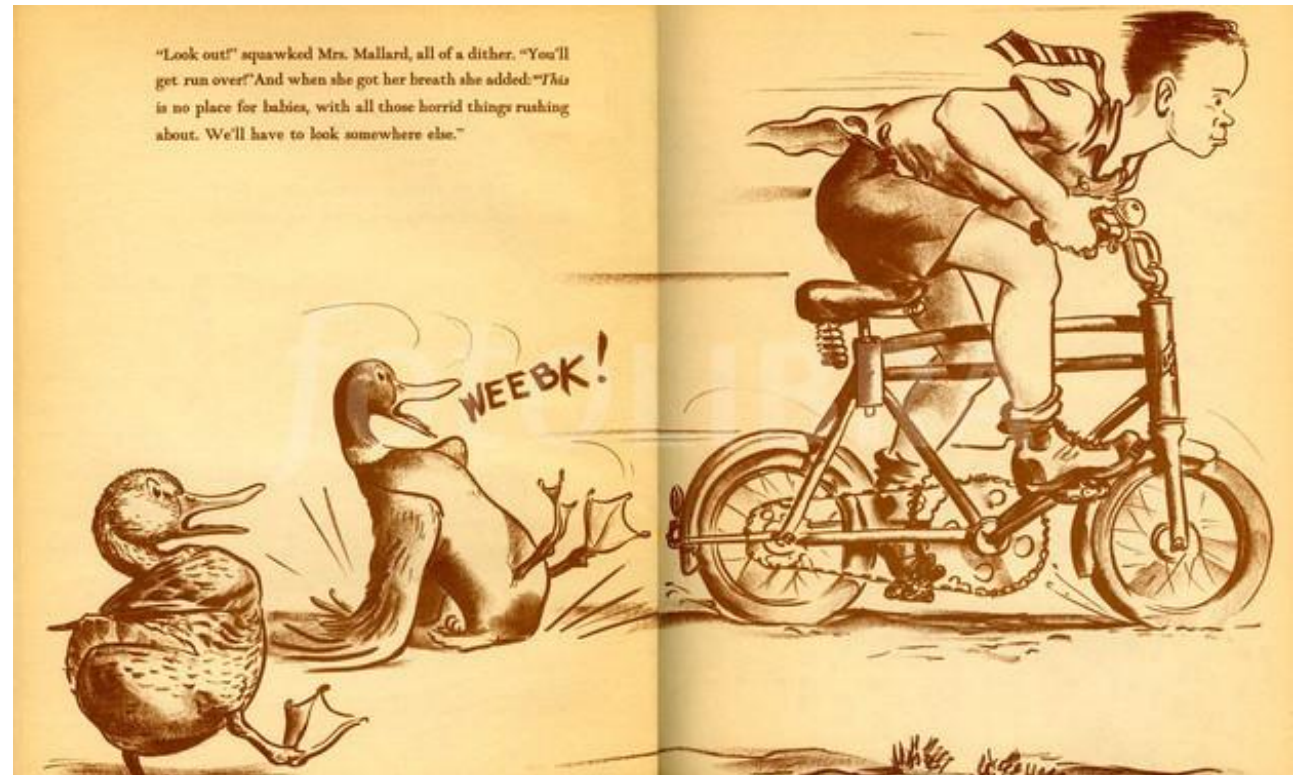
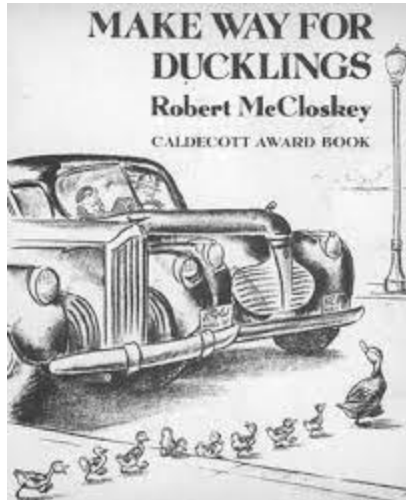
Complete Streets projects are remarkably affordable—some of the projects in our survey cost just a few thousand dollars. They cost less to build than an average urban arterial, yet, as explained earlier, can still increase bicycle, pedestrian, and automobile activity.



Per-mile comparison (all figures converted to 2013 dollars)

- Cost per mile, Complete Streets project construction
- Average arterial "normal cost" per new lane mile
- Average arterial "high cost" per new lane mile

# First Have to Combat This





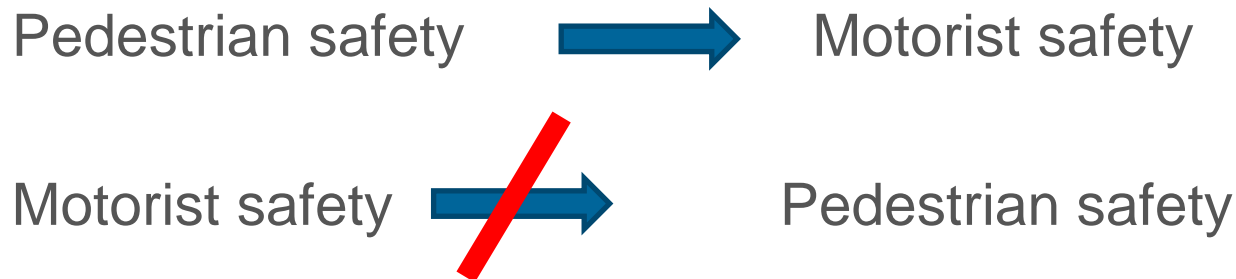
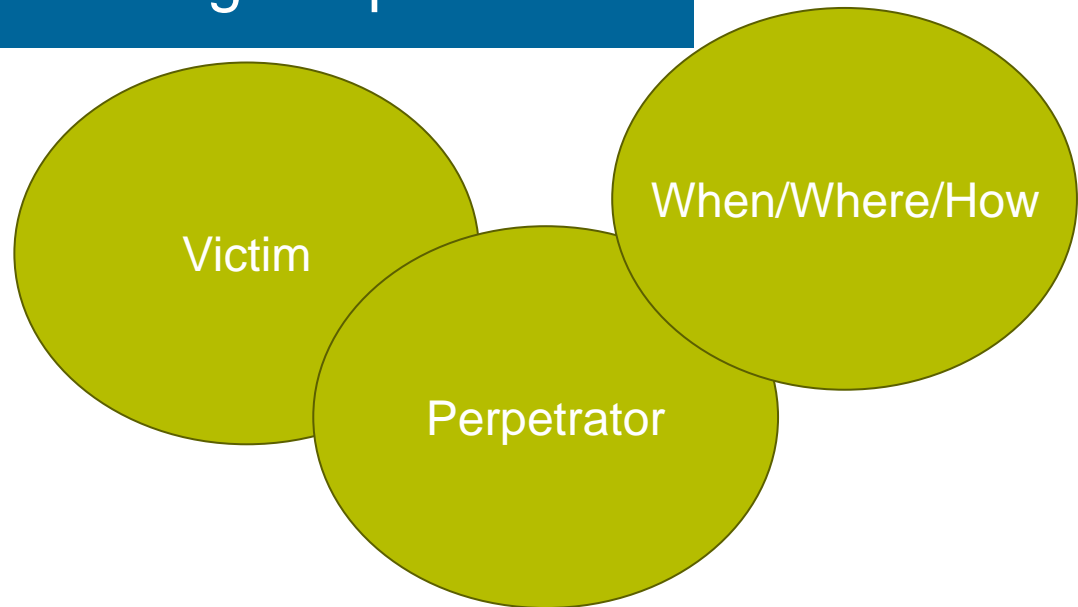
# Traditional Solutions Redux

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- JUDICIOUS Separation
- ~~Command and Control~~ (make people, in and out of cars, behave better)
- Build systems that forgive errors FOR PEDESTRIANS, CYCLISTS AND OTHER USERS
- Three [BETTER] Es of traffic safety
  - ~~Education~~ → cultur**E**
  - ~~Enforcement~~ → self-**E**nforcement
  - ~~Engineering~~ → d**E**sign

# Making Space for Innovative Thinking

90% of the solution is defining the problem





TRY

# Thank You!



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